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The grammar of the essential indexical[☆]Txuss Martin ^{a,*}, Wolfram Hinzen ^{a,b}^a Grammar, Mind and Reference Lab, Departament de Lingüística General, Universitat de Barcelona,
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Abstract

Like proper names, demonstratives, and definite descriptions, pronouns have referential uses. These can be 'essentially indexical' in the sense that they cannot be replaced by non-pronominal forms of reference. Here we show that the grammar of pronouns in such occurrences is systematically different from that of other referential expressions, in a way that illuminates the differences in reference in question. We specifically illustrate, in the domain of Romance clitics and pronouns, a hierarchy of referentiality, as related to the topology of the grammatical phase. Our explanation is based on extending the 'Topological Mapping Hypotheses' of Longobardi (2005) and Sheehan and Hinzen (2011). The extended topology covers the full range of interpretations, from purely predicative to quantificational (scope-bearing), to referential and deictic. Along this scale, grammatical complexity increases, and none of these forms of reference is lexical. This provides evidence for the foundational conclusion that the source of essential indexicality is grammatical rather than lexical, semantic or pragmatic.

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1. Introduction

A lexical item like 'man' cannot as such refer to this man or that, some men, men in general, the property of being a man, manhood, or mankind: *phrases*, in particular grammatical configurations, are required to achieve any of these effects. Thus, while 'man' is a lexical item, 'the man' is not, and it's the latter that can be used to refer to a specific man, as in 'Give the man a dollar' or 'The man I met this morning was poor', while the former can as such not be so used. Referentiality falls on the side of grammar, not the lexicon, in this sense.¹ Moreover, the phrase 'the man' need not be so used, as when the grammar of its occurrence is different, showing that reference is not strictly a *phrasal* notion either

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¹ In this, our approach is in line with *exoskeletal* approaches to language (like e.g. *Distributed Morphology* or *Nanosyntax*) which also militate against the *lexicocentrist* view, by relying on structure rather than the lexicon to obtain meaning (cf. Borer, 2005; Marantz, 2008; Starke, 2010; Boeckx, 2014).

and instead depends on phrases entering the right grammatical relations. Thus, in '*Whenever I interview a couple, the man is more silent*', no definite man is denoted: there is a description, picking out a variable referent, but no definiteness.²

Reference is not a univocal notion, moreover: referentiality comes in different *forms*, and these *co-vary* with grammatical configurations. Thus, proper names, in their referential uses, are by now widely acknowledged to have referential properties different from those of definite descriptions in their referential uses. Definite descriptions in turn are different from indefinite descriptions, which cannot be used referentially at all, though they can be specific. Bare noun phrases that project no determiner can only refer generically (cf. '*He likes men*') or to a mass (cf. '*He ate man*', said about a cannibal, similar to '*He ate beef*'). Finally, noun phrases in grammatically predicative positions neither refer generically to objects nor to a mass/substance, having property readings instead (e.g. '*He is a man*'). The grammar of the nominal, reviewed below, is systematically different in each of these cases, showing that different forms of reference co-vary with grammatical configurations.

By contrast, *none* of these forms are lexical, and none are predicted from independent *semantic* considerations. Semantics, in the base sense of reference or 'relations to the world', makes no predictions for what forms of reference, if any, will exist in a given species: for all that reference, as a semantic base notion, predicts, reference in humans could be causally controlled – but it never is, pathologies aside, in the way it always is in other species, such as monkeys (Fitch, 2005). Instead, we find the same range of forms of reference in all human languages: from predicative to generic, indefinite, definite, rigid, deictic, and personal forms of reference, each with their inherent grammatical constraints.

In short, reference in humans takes a species-specific *format*, and the forms of reference that we find in this species are not found outside of language, in non-linguistic species: chimpanzees, in particular, do not even *point* (declaratively), in the way that normally developing human infants universally do around their first birthdays (Butterworth, 2003), let alone exhibiting the range of forms of reference above, which universally develop in humans in subsequent years. This motivates taking the perspective seriously that the forms of reference found in humans, and their inherent constraints, are mediated by the grammatical organization of language, given that they are not available lexically or pre-linguistically.

Classical support for this strategy comes from the research program of a 'grammar of reference' that Longobardi (1994, 2005) inaugurated for the forms of reference found in the nominal domain. Longobardi specifically argued that the grammar of proper names in their referential uses is systematically different from that of definite descriptions, in ways that Hinzen (2007:ch.5) argued explains the kind of 'rigidity' of reference (Kripke, 1980) found in proper names in these uses. We review this result in more detail below. Longobardi's mapping principles for the forms of reference targeted are 'topological' in the sense that it is the internal geometry of the DP and the clause of which it is a part, which determines the way in which it can be used to refer. Sheehan and Hinzen (2011) extended this topological mapping theory to clauses, and the forms of reference available there: a clause can pick out a proposition, a fact (in factives), or (in matrix contexts) a truth value, as reviewed below.

All of this leaves the case of pronouns open, which we target here. A long tradition in philosophy and semantics has already argued that referential uses of pronouns cannot be assimilated to either that of pronouns or definite descriptions: pronouns, it is said, in particular the personal ones, have 'essentially indexical' uses that cannot be assimilated to the use of either proper names or definite descriptions. Thus, for example, Frege's famous amnesiac, Dr. Lingens, who is lost in the Stanford library after closing hours and reads books about some academic called 'Lingens', can find himself in a situation where he knows everything there is to be known (from books) about Lingens, yet fails to grasp the proposition expressed by '*I am Lingens*' (Perry, 1993).

This paper takes this tradition as a starting point, aiming to extend the topological mapping theory even further, to the domain of pronouns in such essential indexical uses. The core evidence presented below supports the view that, in pronouns in these uses, the left edge of the nominal phase is extended further, in line with what extant results in topological mapping theory make us expect. We document this expansion below for the domain of Romance clitics and pronouns.

The evidence also suggests that essentially indexical forms of reference are grammatically or topologically also the most *complex*. This, if true, would naturally *explain* their essential indexicality: for if proper names and definite descriptions are, in a defined sense, (i) grammatically less complex, and (ii) the degree of this complexity systematically correlates with the forms of referentiality that we find, then (iii) it is reasonable to conclude that essential indexicals cannot be replaced by either proper names or definite descriptions for this very reason. The reason for the existence of essential indexicality would then be grammatical, not semantic or pragmatic.

² This suggests that the very notion of a 'definite description' is a misnomer: whether a phrase like 'the man' functions as a definite description can only be told by knowing its grammatical context. The exact same 'definite description' can be used referentially and attributively, and indeed in the very same clause: cf. '*I wished her husband wasn't her husband*' (Lycan, 2009), where the first occurrence is referential, the second is attributive, in line with the grammatically predicative role of the phrase in its second occurrence but not the first.

Indeed, a pragmatic perspective on this phenomenon would predict that if we eliminated essential indexicals from a language, the result would be a merely *pragmatic inconvenience*: instead of simply saying ‘I’ or ‘he’, the reference of which is said to depend on context, we would simply always have to have proper names (or else a unique identifying definite description) ready to hand.³ However, the fact that cognitive disorders such as autism and schizophrenia spectrum disorders distinctively affect pronoun use (Bartolucci and Albers, 1974; Hobson et al., 2010; Watson et al., 2012), already strongly suggests to the contrary that normal pronoun use *is* essential to normal thought and mental health, and an indicator of cognitive change when impaired. The patients concerned do not merely suffer from a pragmatic inconvenience in the above sense, and their mental health is not restored by providing them with sufficient proper names and definite descriptions.

In a companion paper, we focus on this deeper issue, and on the explanatory question of where essential indexicality *comes from*, which ultimately motivates our empirical linguistic investigation here. In this paper, however, we focus almost exclusively on the linguistic evidence. In the next section, we summarize what we know about the ‘grammar of reference’ in the sense of Longobardi (2005) so far, giving a particular interpretation of Longobardi’s theory, which, as interpreted and extended in Sheehan and Hinzen (2011), links the referentiality of nominals to the topology of the grammatical phase, and exactly three forms of reference that are thus enabled in both the nominal and clausal domains. Section 3 is the empirical core of the paper. It illustrates a hierarchy of referentiality, ranging from partitive and neuter, to accusative, to locative, to dative, and to strong personal pronouns, as correlating with an increase in grammatical complexity step by step. This is a hierarchy, insofar as we move from ‘cannot be referential’ to ‘must be referential’, via a number of intermediate steps. We demonstrate this hierarchy in Romance clitics and pronouns, where we observe referential properties to systematically change as we move from predicative and neuter clitics up the hierarchy. Again, grammatical complexity changes alongside, and increases with referential strength, which is weakest in predicates, and clearly strongest in deictics and personals. Section 4 concludes that essential indexicality needs to be illuminated grammatically, and does not seem to exist without forms of grammatical complexity of the right kind.

2. The grammar of reference

It is standard in current philosophy of language textbooks to see the notion of reference treated as an *semantic* notion, viewed as a relation between a word and a thing – and hence effectively a *lexical* semantic notion. This perspective makes it surprising why there should be a grammar of reference at all, in other words, why it should be that in order for a word to function referentially, or to refer in one of a restricted number of available ways, it would need to occur in particular grammatical configurations. That, however, appears to be the case.

2.1. Longobardi’s classical theory

Longobardi (1994, 2005) notes two fundamental denotational strategies in every human language when 3rd Person nominals that occur in grammatical argument positions: Either denotation is mediated by a quantifier binding a variable falling under a descriptive predicate, or it involves ‘direct’ reference to an object unmediated by a quantifier or descriptive predicate. These two strategies correlate with grammatical facts: whether a given nominal is put to denotational use under the one or the other strategy depends on the configuration it enters. This is an implicit rejection of the idea that names enter the derivation as type $\langle e \rangle$, and a confirmation of the view that no name, *qua* lexical item, has a fixed semantic type: its type co-varies with its grammar. Specifically, Longobardi (2005:9) proposes:

- (1) **THE TOPOLOGICAL MAPPING THEORY (TMT)**
Object reference if and only if N-to-D movement (or CHAIN).

If so, the mode of reference of a given nominal follows from the geometry of the phrase-structure tree, rather than from independent semantic principles. Longobardi suggests that any nominal functioning grammatically as an argument has two layers, a lexical core (‘NP’) and an ‘extended projection’ involving a functional category commonly identified with the label ‘D’:

- (2) [D [NP]]

³ In a similar way, Quine (1960) suggested that proper names could be eliminated in favor of uniquely identifying definite descriptions, at no *semantic* loss, until it became widely recognized that proper names have a distinctive semantics, not found in the domain of definite descriptions. Their loss would thus be more than a pragmatic inconvenience. Here we argue that the same point transfers to indexicals in relation to other referential expressions.

Where D is empty, denotation can only be determined via the descriptive content of the NP, which is therefore essential to the denotation, making it come out as descriptive in character:

- (3) I want to find [_D [_{NP} unicorns]]

No reference to particular unicorns is derived in this instance and no existence presupposition arises either. The nominal also takes no scope. Where there is a 'weak' determiner that supports no referential uses, as in (4a), or the D-position is empty, as in (4b), the NP-restriction is still essential to the fixation of the reference, but the reading becomes quantificational (namely, indefinite existential). With 'a', specific unicorns can now be referenced (though not identified). Moreover, the nominal takes scope, as shown by the fact that if it takes wide scope, (4a) and (4b) both become false on a literal reading, on the widespread assumption that there are no unicorns:

- (4) a. I am looking for [_D a [_{NP} unicorn]]
b. I found [_D ∅ [_{NP} unicorns]]

If there is a strong determiner (5a) supporting referential uses, or even a deictic one (5b), scope is necessarily wide, and accordingly the examples in (5) are always false:

- (5) a. I am looking for [_D the [_{NP} unicorn]]
b. I am looking for [_D this [_{NP} unicorn]]

Finally, if there is a proper name, the lexical core of the DP is vacated, and head-movement (by substitution) of N–D takes place:

- (6) I am looking for [_D Eleanora_t [_{NP} *t*]]

In case Eleanora is the name of a unicorn, (6) is false as well. Of course, in line with our remarks above, lexical proper names do not *have* to move into D. But if they do not, and the D-position is filled, a descriptive or predicative reading is derived. The case of the N in D after N-to-D movement is grammatically 'more complex', in our terms, because the interior of the phase is moved to the edge, and the copy in the interior is deleted, rather than the NP staying in situ and the edge being filled. In other words, the same lexical item is used twice: in N as a restrictor, and in D as the fixator of reference. The edge is, in the intuitive terms we use, 'heavier' when the NP is in the edge than when a determiner is, because a proper name DP has substantive lexical and phonological content, but a determiner does not.

There is, in sum, (i) a *progression* in the domain of argument nominals, from predicative and non-scope taking nominals, to existential weakly referential but scope-taking nominals, to wide-scope-taking nominals with strong determiners, to nominals where the head of the NP has substituted for the determiner. (ii) This progression is marked by an *increase* in grammatical complexity (as argued for in e.g. [Cardinaletti and Starke, 1999](#); or [Zamparelli, 2000](#)): first the D position is empty; then it is filled through a weak determiner or a default existential quantifier in the interpretive systems; then it is filled through a strong determiner; where there is an additional deictic element, the NP-complement becomes optional; finally N is moved to the edge, subject to parameterization according to whether it is overt or covert (see below).

Descriptively, we may characterize this process as one of 'movement toward the edge', where the 'edge' in question is the edge of DP viewed as a 'phase' ([Chomsky, 2001](#)): the observation is that as the edge gets gradually 'heavier' (through strong determiners, deictics, or movement of a substantive lexical noun to the edge), a conversion takes place from an initially predicatively interpreted expression to a more strongly referential one derived at the phase edge, less dependent of the phase interior's lexical descriptive content. Reference becomes more 'direct' (less descriptive) in this sense.⁴ Insofar as Longobardi's account goes, however, the limit of this process is reached with N-to-D movement in the domain of 3rd Person, non-deictic reference.

⁴ An anonymous reviewer questions, against a long linguistic tradition, that referentiality can come in varieties and in degrees. Indeed it cannot, in a logical system, where the initial choice is between constants and quantifiers only. In grammar, it is a matter of observation, however, that some forms of reference are deictic or personal, while others are not; that, with the former, the NP complement becomes grammatically optional, indicating that reference will be less dependent on description; that, in 'rigid' reference, where there is equally less dependence on descriptive content, evidence for N-to-D movement exists, which would explain the lesser dependence in question (see right below). None of these considerations even make sense when applied to a logical system, which has been the almost exclusive background against which discussions of reference since [Russell \(1905\)](#) have been conducted – in line with the basic assumption we here question, that reference is a semantic phenomenon, not a grammatical one.

As noted in [Hinzen \(2007:ch.5\)](#), the TMT naturally explains *why* an object-referring expression retains its reference when a descriptive NP associated with this object fails to apply to it. The empirical fact is that if all we know about Gödel is that he invented the incompleteness theorems, and he turns out to be an impostor who stole them, the name ‘Gödel’ will still refer to Gödel, not to whoever invented the theorems ([Kripke, 1980](#)). Similar facts hold for referential uses of definite descriptions, or demonstratives. They can all be explained if, in these contexts, the NP-complement of D is either vacated, absent, or non-constitutive of the identity of the referent, because reference is determined in an edge that is ‘heavy’ enough in the sense above. In all of these cases, there will therefore cease to be a descriptive condition on which reference at the phase edge depends. It equally follows that where D is filled, and the proper name stays in N, a reading is derived that depends on extracting whatever residual descriptive content the name provides. Denotation is purely quantificational, and (7) will have the semantics of (8):

(7) No John is proud of his name

(8) There is no x such that x is called ‘John’ and x is proud of x ’s name.

There is, then, a *grammatical* explanation of object-referentiality or ‘rigidity’, demonstrating the conceptual possibility of grammatical explanations of semantic facts. Rigidity is of course commonly defined as sameness of reference across all possible worlds, and no such notion was used in an explanatory role above. Instead, only grammatical facts are mentioned, and their arguable effects on the interpretative process. Maybe, then, the above account cannot claim to have derived rigidity in a metaphysical sense. Even so, what it has arguably derived is the *empirical* fact that as ordinary speakers commonly use proper names, their reference remains constant under changes of their descriptive properties.⁵

Longobardi’s theory as reformulated above allows for an elegant account of cross-linguistic variation in the derivation of object-reference, which leaves the basic explanatory principles, insofar as they are grammatical, untouched.⁶ In particular, the difference between Italian and English reduces to a simple difference in chain visibility, which purely affects how grammatical processes appear on the phonological surface. Specifically, in Italian, the connection between D and N must be visible at the surface, either via an expletive-associate chain or in the form of overt movement:

- (9) a. [DP Il mio [NP Gianni]]... (expletive-associate CHAIN)
 the my Gianni
 b. [DP Gianni mio [NP t_{Gianni}]]... (overt movement chain)
 c. *[DP D mio [NP Gianni]]... (no PF-visible chain)

In (9b), *Gianni* is first merged in N and then undergoes substitution into D. By consequence, it precedes what would normally be pre-nominal modifiers such as possessors. In (9a), *Gianni* remains in N but still forms a chain with the expletive article in D. Object reference is thus maintained. In (9c), by contrast, *Gianni* remains in N with no chain forming, deriving the fact, stable across all Italian dialects, that no object-referential reading is available in this case. In other instances, proper names remain in the N position and no chain is generated, and thus a descriptive reading is derived, where the name merely provides a restriction to the quantifier:

- (10) a. Ci sono due Gianni nelle mia classe
 There be.3p two Johns in-the my class
 ‘There are two Johns in my class’
 b. Conosco tre Marie
 know.1s three Marys
 ‘I know three Marys’

ITA

⁵ Variability of reference across worlds depends on descriptive predicates being present whose satisfaction by objects can as such vary from world to world. Where there is no descriptive predicate, there can be such variation. There is no such predicate in the referential uses of proper names, as we show by appeal to their grammar. Therefore we predict and explain that they will refer unmediated by a descriptive predicate.

⁶ Consistent with this approach, Classifier-NP constructions in Mandarin, Swahili, or Nguni have been argued to not be (expanded enough to be) object-referential ([Ndayiragije and Nikiema, 2011](#); [Wu and Bodomo, 2009](#), *contra* [Cheng and Sybesma, 1999](#)) according to whom Classifier substitutes for D in these languages. This reinforces the mapping principles assumed below. See also [Zribi-Hertz and Mbolianavalona \(1997\)](#) for a particularly clear case, consistent with Longobardi’s account, for a correlation in Malagasy between grammatical structure and referentiality, with the former increasing as the latter does. A more controversial case is Japanese, to which Longobardi (2008) argues his mapping principles do not apply, due to the fact that Japanese does not grammaticalize Person. For evidence to the contrary, suggesting that Japanese has the normal DP despite lacking articles, see [Furuya \(2012\)](#).

As Longobardi (2005:26–27) shows, ‘il’ in (9a) functions differently from the definite article in other contexts, and can differ in morphology from the latter in other languages such as Catalan. Turning to English, the principle of N-to-D movement in the absence of a determiner remains valid, yet object-reference is derived via *obligatory covert movement* of the nominal. This hypothesis explains why (11a) is now in, while (11b) is out, and why (11c) derives a descriptive reading:

- (11) a. [DP D old [NP John]] came in (covert movement)
 b. *[DP John old [NP t_{John}]] came in (overt movement)
 c. #[DP The old [NP John]] came in

That ‘rigid’ reference to objects is a grammatical fact is confirmed by the fact that the above principles for deriving it have nothing specifically to do with nouns that are lexically proper names. For the exact same principles explain when and why lexical *common nouns* can be used referentially (as in ‘*Man comes from Africa*’), though in this case reference is of course not to objects/individuals but to kinds in the sense of Carlson (1977), which is the only sort of referent that we can generate from a common noun. The principles thus govern referentiality as such, not *object* reference specifically. In particular, as Longobardi points out, in English, DPs used to refer to kinds are incompatible with an overt determiner, as would be explained if these DPs obligatorily require covert N-to-D movement:

- (12) (*The) apples are/milk is good for you (* with a kind reading)

In Italian, on the other hand, bare NPs cannot be kind-denoting, as again predicted if a kind-denotation requires an overt expletive determiner:

- (13) I love (*the) good wine.

- (14) Amo *(il) buon Vino
 love.1s the good Wine
 ‘I love good wine’

ITA

[based on Longobardi, 1994:631]

While the bare NP in (13) can receive a kind reading, its Italian equivalent in (14) cannot. In Italian, bare NPs receive only an existential reading, which corresponds to a DP configuration in which the null determiner binds a variable restricted by NP. Overall, we conclude that there is strong empirical evidence that referentiality – to two kinds of referents available in the nominal domain, namely objects and kinds – is established via N-to-D movement in both Italian and English, but that it is externalized differently as either an overt or covert chain.

2.2. Extending the topological mapping theory

There is more evidence, however, which truly brings out the grammatical rather than lexical character of this explanation of referentiality. This is evidence that the above principles by which reference is derived from predicative lexical roots is in fact wholly *independent* of a specification of a given lexical root as ‘nominal’, and applies to verb-based structures such as clauses as well. They are thus independent of what are commonly called the ‘lexical categories’ (Baker, 2003). We could, in this case, generalize the TMT as suggested in Sheehan and Hinzen (2011), who we follow in this regard. What really matters, we would say, is not ‘N’ or ‘D’ or whatever other categorial labels we wish to give to certain grammatical functors, but the topology of the phase, in which there is a basic bi-partite division into a predicative core (‘the interior’) and a referential periphery (‘the edge’). There is, in short, a single referential ‘template’, the phase, irrespective of lexical category:

- (15) **THE PHASAL TEMPLATE**
 [Edge [Interior]]

The ‘interior’ provides for the descriptive content of a lexical concept that by moving toward the edge, in the course of the grammatical structure-building process, becomes a referential expression. Consider (16), where the basic phase template is instantiated in two different ways:

- (16) a. [the [NP kings of France]]
 b. [that [TP there are kings of France]]

Exactly as the NP provides a descriptive condition for the identity of the referent mapped from ‘the’ at the edge of (16a), TP provides such a description for the referent mapped from ‘that’ at the edge of (16b). This makes a direct prediction: if ‘that’ in the edge of the clause regulates the reference of clauses, there should again be two extremes: a weakest case, in which the edge can be empty, and a strongest case, in which it’s obligatorily filled – either through a clausal equivalent of the Italian ‘expletive’ definite article (as e.g. in Gascon, below), or through T-to-C movement. Sheehan and Hinzen (2011) confirm this prediction through a wide range of cross-linguistic data. Thus, the strongest form of clausal reference is truth: there is nothing more fundamental than truth. This form of denotation is ultimately achieved only at the root, i.e. in matrix clauses (though see Sheehan and Hinzen, 2011: section 4.3, for *embedded* root phenomena). In matrix clauses, the Complementizer is obligatorily covert exactly as the determiner in the case of object (as well as kind) reference in English:

- (17) a. (*That) John left.
b. (*The) John

If it is overt, readings are derived in which no truth value is asserted, as in the exclamative (18), since no movement to the edge can take place, unless there is an *expletive Complementizer*, as a clausal equivalent of the ‘expletive’ article in Italian, in which case a truth value is asserted (19):

- (18) *(Que) Juan siempre deje la puerta abierta! SPANISH
that John always leave.SBJV the door open
‘That John has to leave the door open!’ (real complementizer: no truth is asserted)
- (19) *(Que) soi gascon GASCON
that be.1s Gascon
‘I am Gascon.’ [from Campos, 1992] (expletive complementizer: truth is asserted)

Gascon ‘que’ appears to be precisely restricted to finite matrix clauses in which a truth is asserted. In turn, the weakest form of reference available for a clause is where the clause is merely a possible truth (no attitude is taken toward the truth value). We predict that in this case, the edge can be empty, as it indeed can be:

- (20) I believe (that) John left.

Finally, just as referential descriptions have always oscillated in philosophers’ intuitions in regards to whether they are referential or quantificational, we obtain an intermediate case in the clausal instance too. For clauses can do more than referring to truth values or denoting propositions unvalued for truth in discourse: they can also be used to refer to facts presupposed by the speaker to obtain (which is different from and weaker than the speaker *asserting* any truth). We predict from the above that, in this case, which essentially only occurs in argument positions, the edge must be filled. Vindicating this prediction for factive clauses is complicated by a number of factors, and the lack of heterogeneity of the group of ‘factive’ verbs. As Sheehan and Hinzen (2011) argue, however, on the basis of a typology of such clauses, the purest case of factive verbs is that of the so-called ‘emotive factives’. In this case, the Complementizer tends to be more obligatory, as predicted:

- (21) I regret/resent/ignore/neglect *(that) John left

Moreover, a number of independently attested phenomena, from embedded root phenomena and V-2 to slifting to subextraction, suggest that the complement of this type of factive verb *is* indeed grammatically unique and of one single kind. Grammar, therefore, even at the level of clauses, tracks the formal ontology of reference quite finely, and these specific factives are in the clausal case what definite descriptions are in the nominal one. The latter, as noted, *can* be referential; but they necessarily have a predicative core (an obligatory NP complement), which enters the act of reference. Likewise, factive clauses can be viewed as referential expressions, but they nonetheless never rigidly refer to truths, as only matrix clauses do: whoever utters (21) does not *assert* that John left. Rather, the embedded clause is a grammatical predicate, like all other arguments are when they are embedded as arguments in a higher phase. Thus, in *kill Bill*, *Bill* is a predicate – the Theme – of an object – an event – derived at the edge of the verbal phase. And similarly, in (21), that John left is a description of a content identifying a particular mental event that is referenced by the matrix verb.

2.3. Section summary

The single phasal template provides for a general description of how content expressions become referential in human language. To become referential, linguistic expressions have to occur grammatically in argument positions. If they so occur, they are converted into what we may call ‘referring expressions’, by projecting and expanding their edge. Proper

names fit into this scheme insofar as the descriptive core of the phase is emptied and reference is regulated via the edge alone, after movement. Clearly, this spectrum reveals a spectrum of possible forms of reference in human language, which co-vary, not with causal or intentional facts, but *grammatical* principles, which moreover are arguably constant even across different *lexical* domains (N vs. V), though we have not made that case here (see Sheehan and Hinzen, 2011).

3. The grammar of essential indexicality: the case of pronouns

As we will now see, deictic forms of reference are enabled through a *further* expansion of the edge, involving a deictic layer and D-to-D movement, which we will argue derives the ‘direct’ reference of pronouns in their indexical uses, which Kaplan (1989) claimed for them against the Fregean tradition. Pronominals pose a range of questions that differ substantially from the ones considered so far in this paper. As we have seen, the notion of ‘rigid reference’ does not capture what makes them essential, as we find such rigidity in proper names as well. Nor can they be assimilated to definite descriptions, where there is both a phasal edge and a phase interior and both are interpreted. The natural expectation is that the further extended the edge is, and the higher an element is merged or moved up in the left edge of the phase, its descriptive content is further bleached or absent, making the language-world connection even tighter. We pursue this intuition in what follows.

We suggest, then, a topology that expands those put forward in Longobardi (2005) and Sheehan and Hinzen (2011). Above the edge filled by a determiner or by N-to-D movement, we will propose a deictic layer following Jayaseelan and Hariprasad (2001), which accounts for demonstratives in their deictic uses, in which the NP-complement can be absent. This shows that the edges of the DPs they head are by this point in the hierarchy ‘heavy’ enough to stand on their own, supporting a referential function that does not depend on the presence of any lexical layer with a substantive descriptive content –not even one that has been moved to D, as in the case of proper names. Graphically, our proposal can be summarized as in (22), with the extended mapping principles derived from the ‘topology’ of grammatical phases reviewed in the previous section:

(22) **TOPOLOGICAL MAPPING PRINCIPLES**

- | | | |
|----------------------|-----------------------|---|
| a. Predicative | → phase interior only | → [EDGE \emptyset [INT <i>man</i>]] |
| b. Quant/ref | → edge + interior | → [EDGE <i>a/the</i> [INT <i>man</i>]] |
| c. Rigid (3P) | → edge + interior | → [EDGE <i>John</i> [INT <i>t</i>]] |
| d. Deictic reference | → edge + (interior) | → [EDGE <i>this</i> [INT (<i>man</i>)]] |
| e. Person reference | → phase edge only | → [EDGE <i>I</i> [INT \emptyset]] |

Like demonstratives, the personal pronouns engage this deictic layer as well, and they too can crucially occur without an NP-restriction, which we argue, *pace* Elbourne (2009), to be lacking completely by this point in the hierarchy, rather than merely being deleted in PF. Unlike demonstratives, however, the personal pronouns go further beyond this deictic layer, by engaging the system of grammatical Person – necessarily so, as we have argued. Where this happens, D-to-D movement within the extended edge of the phase that includes the deictic layer is what we see, as we show below by engaging in a morphemic decomposition of Romance clitics, following Martin (2012).

This hierarchy of referentiality topped by the personal pronouns is a monotonic and asymmetric one, in that any personal-pronominal referent can *also* be referred to with the 3rd Person (‘he’, ‘the object having genetic code XYZ’), whereas the reverse is not true: 3rd Person objects of reference need not even be language-users or have a first person perspective. As we progress into the Person system, therefore, reference becomes more dependent on linguistically specific modes of reference that make increasing demands on grammar, as stated in the following hypothesis:

(23) **THE GRAMMAR-REFERENCE LINK HYPOTHESIS**

Referential strength (from predicativity to deixis) is not an intrinsic property of lexical items, but rather of certain grammatical configurations.

In line with (23), dependence on the non-linguistic context *decreases*: while we need to witness linguistic utterances to understand who refers to himself as ‘I’, no inspection of the non-linguistic context whatsoever will or can reveal who is ‘I’: all we can encounter there empirically is *objects*, which as such are always 3rd person. By contrast, it is one of the crucial insights in philosophical discussions of the self since Kant that the ‘I’ is *not* an object of experience: it is what underlies, as a pre-condition, all of our experience, and it cannot be captured in terms of any descriptive properties (‘*this kind of guy*’, ‘*the person called XYZ*’, ‘*the gray-haired gentleman*’, etc.).

In none of the kinds of pronouns we discuss, referentiality is a function of lexical specification. It is rather a function of grammatical complexity (marked, in particular, by Case) and where in the hierarchical structure of the clause they are located (cf. Diesing, 1992; Mahajan, 1992; de Hoop, 1996; Reinhart, 1997; Zribi-Hertz and Mbolatianavalona, 1997; Cardinaletti and Starke, 1999; Winter, 2000; Zamparelli, 2000; Bartos, 2001; Borer, 2005; Danon, 2006; Perelstvaig, 2006, etc.). In what

follows we pay particular attention to Romance pronouns and clitics, which we might view as replicating the referential status of the nominals they stand in for, while being denuded of lexical content. Grammatically regulated forms of reference should thus be most perspicuous in this system.

3.1. *Predicative clitics*

At the very bottom of our hierarchy lie null pronouns, which have no referential properties on their own, inheriting these completely from a nominal elsewhere in the clause by which they are bound. We return to these in passing below. Here, rather, we begin with overt but still purely predicative clitics, in which reference is established solely via a descriptive predicate, and thus has the lowest grammatical complexity in the paradigm (not counting null pronouns). Bare nominals in Catalan or Spanish are considered predicative, as they lack referentiality, cannot express definiteness, and have lowest scope (Déchaine and Wiltschko, 2002; Picallo, 2007):

- | | | | |
|------|----|--|-----|
| (24) | a. | El president necessita escorta
The president needs bodyguard
'The presidents needs bodyguards' | CAT |
| | b. | En Pere sempre porta jaqueta
The Peter always wears jacket
'Peter always wear a jacket' | |
| | c. | Hay sillas para todos
there-is chairs for everybody
'There are chairs for everybody' | SP |

Additional evidence in favor of the predicative character of bare nominals is their ban from argumental positions, such as those of subjects, indirect objects (dative), or ECM environments (25a–c). Plural bare nominals do occur in direct object position, though (25d), which reveals differences between partitive and dative (pro)nominals (*cf.* section 3.3):

- | | | | |
|------|----|---|----|
| (25) | a. | *Amigo de María telefoneó
friend of Mary telephoned.3s
INTENDED: 'A friend of Mary telephoned' | SP |
| | b. | *(Le) dan libros a niño
DAT.3P give.3P books to child
INTENDED: 'They give books to a child' | |
| | c. | *Considero libros aburridos
consider.1s books boring
INTENDED: 'I consider (some) books (to be) boring' | |
| | d. | Vi estudiantes en el bar
saw.1s students in the bar
'I saw students at the bar' | |

The clitic that resumes the Catalan nominals in (24a–b) is the so-called *partitive* 'en' (26a–b), which in these contexts is used predicatively, and thus has the same properties of its phrasal counterpart: it lacks referentiality, cannot express definiteness, and has lowest scope. Spanish lacks a counterpart of the partitive, and it hence uses either nothing at all, or resorts to *recycling* some other clitic, as in (26c) (see Longa et al., 1998 on the recycling strategy):

- | | | | |
|------|----|---|-----|
| (26) | a. | El president en / *la necessita
The president PART ACC.3FS need.3s
'The president needs it' (a set of bodyguards) | CAT |
| | b. | En Pere sempre en / *la porta
The Peter always PART ACC.3FS wear.3s
'Peter always wears it' | |
| | c. | Ø / Las hay para todos
The ACC.3FS there-is para everybody
'There is one for each person' | SP |

The same conclusion can be inferred from the quasi-minimal pair in (27), where the accusative clitic, but not the predicative clitic, is compatible with a wide scope reading of the quantifier 'many':

- (27) a. No els / *en veus, molts errors CAT
 NEG ACC.3SM PART see.2s many errors
 'You don't see many (of the) errors' (wide scope reading of 'many')
 b. No *els / en veus molts, d'errors
 NEG ACC.3SM PART see.2s many of-errors
 'You don't see many errors' (narrow scope reading of 'many')

Our claim was that like everything else, pronouns do not have lexical specifications concerning their interpretation (predicative, quantificational, referential, deictic). Rather, their interpretation is determined grammatically by how high they are located within the structure of the extended phase. So, in order to occupy the lowest positions, clitics must have as little grammatical structure as possible. That is the case with partitive 'en', which is fully deprived of ϕ -features. For Spanish, the recycling strategy selects either no clitic whatsoever or a very underspecified one.

Another interesting clitic is the Catalan neuter 'ho' that stands for predicates in general, whether clausal, adjectival, or nominal⁷:

- (28) a. El cotxe sembla bo CAT
 the car seems good
 'The car seems good'
 b. El cotxe ho sembla
 the car NEUT seems
 'The car seems (good)'
 c. En Pere es un idiota
 the Peter is a idiot
 'Peter is an idiot'
 d. En Pere ho / *el és
 the Peter NEUT ACC.3SM is
 'Peter is (an idiot)'

Even definite descriptions can be pronominalized by means of 'ho' when they are in predicative position, something that can be taken as independent confirmation of the fact that those DPs act as predicates in these contexts rather than as arguments, and that neither referentiality nor attributivity in definite descriptions is an either lexical or even phrase-structural fact:

- (29) a. En Pere és el porter CAT
 The Peter is the porter
 b. En Pere ho / *el és
 The Peter NEUT ACC.3SM is
 'Peter is (the porter)'

Embedded CPs, which also always function as predicates,⁸ also cliticize through the neuter clitic, unlike what happens to argumental noun phrases:

⁷ Catalan 'ho' is special in that it doesn't have clear counterparts in other major Romance languages, where the neuter clitic is normally homophonous with the accusative masculine singular clitic. That this clitic is not accusative, however, is shown by its lack of gender agreement:

- (i) a. La chica parece simpática
 the girl looks nice.FEM
 'The girl looks nice'
 b. La chica lo / *la parece
 the girl NEUT / ACC.3SF looks
 'The girl looks (nice)'

⁸ Embedded clauses are never independently truth-denoting. Although embedded clauses can refer to facts and embedded root phenomena exist (Sheehan and Hinzen, 2011), they can never carry the assertoric force of matrix clauses. In this sense, they are always predicates, which denote descriptive properties of the (mental) event denoted by the matrix verb. This is generally true of syntactic arguments in any Neo-Davidsonian semantics such as Pietroski (2011): all arguments denote relations to events denoted by the predicates of which they are the arguments.

- 30 a. No entenc el tema CAT
 NEG understand.1s the topic
 ‘I don’t understand the topic’
- b. No el / *ho entenc
 NEG ACC.3SM NEUT topic
 ‘I don’t understand it’
- c. No entenc el que vols dir
 NEG understand.1s the that want.2s to-say
 ‘I don’t understand what you mean’
- d. No *el / ho entenc
 NEG ACC.3SM NEUT topic
 ‘I don’t understand it’

As we again see, clausal complements, unlike referential DP complements, cannot get pronominalized by means of accusative clitics, but only by means of the neuter clitic, which lack both morphological case and φ -features. The lack of case is particularly interesting, as the presence of (strong) case is clearly linked to an increase of referential strength along our scale (for precedents of this, see [Enç, 1991](#); [de Hoop, 1996](#); [Torrego, 1998](#); [Cardinaletti and Starke, 1999](#); [Danon, 2006](#); [Lidz, 2006](#), inter alia). Accusative case, however, comes in two forms, with one lower on our scale than the other.

3.2. Accusative clitics, weak and strong

Accusative clitics are morphologically identical to definite determiners ([Postal, 1966](#), and subsequent literature), and like them, but unlike the rest of the clitic paradigm of Romance, they have Gender features. Syntactically, they participate in a number of irregularities like opacity, deletability, ordering variation, or the *Person Case Constraint*, to which we return below ([Perlmutter, 1971](#); [Kayne, 1975](#); [Bonet, 1991, 1995, 2008](#); [Anagnostopoulou, 2005](#); [Adger and Harbour, 2007](#); [Ormazábal and Romero, 2007](#), among others; [Martín, 2012](#) for review). With respect to interpretation, the idea that accusative clitics are linked to specificity is widespread (cf. [Suñer, 1988](#); [Uriagereka, 1995](#); [Roca, 1992, 1996](#); [Sportiche, 1996](#); [Fernández-Soriano, 1993](#); or [Ormazábal and Romero, 2010](#)). [Suñer \(1988\)](#) in particular suggests that accusative clitics are inherently marked for specificity, and hence cannot refer to negative phrases, nonspecific indefinites, or interrogative elements, as we see in (31)⁹:

- (31) a. *[A ningún bedel]_i lo_i veo trabajando SP
 To no janitor ACC.3MS see.1s working
 INTENDED: ‘I see no janitor working’
- b. *[Algún escritor famoso]_i no lo_i he visto
 some writer famous NEG ACC.3SM have.1s seen
 INTENDED: ‘I haven’t seen a famous writer’ (non-specific interpretation)
- c. [A un famoso escritor]_i no lo_i he visto
 To a famous writer NEG ACC.3SM have.1s seen
 ‘I haven’t seen a famous writer’ (specific interpretation)
- d. *¿A qui_i el_i veus? CAT
 To who ACC.3SM see.2s
 INTENDED: ‘Who do you see?’

In addition, as discussed by [Suñer \(1988\)](#), in the dialects of Spanish with accusative doubling, there is a specificity restriction according to which only maximally rigid nominals get accusative doubling. However, the link of accusative

⁹ This restriction can only be perceived with animated (or human) direct objects, where the dislocated phrase gets morphological a-marking, iff it refers to a referentially strong object. Otherwise, the sentence is ambiguous, as shown in (i) below, where ‘some books’ can be specific or not, and a-marking is impossible:

(i) (*A) algunos libros_i no los_i lee nadie
 to some books NEG ACC.3SP reads nobody
 ‘Some books, nobody reads them’

pronouns to specificity holds only to a degree: it cannot be regarded as intrinsic to their lexical specifications, in line with our general approach. This is confirmed by the fact that direct object (accusative) nominals can in fact have referential, quantificational, or predicative interpretations. Consider the sentences in (32), where we show the full range of nominal referentiality, from referentially strong accusatives as in (32a), quantificational or referentially weak accusatives, as in (32b), to a non-referential, or incorporated nominal as in (32c):

- (32) a. Todos buscan a una secretaria SP
 All.PL look-for to a secretary
 'There is a secretary everybody is looking for' (referential)
 b. Todos buscan una secretaria
 All.PL look-for a secretary
 'Everybody is looking for a (probably different) secretary' (quantificational)
 c. Todos buscan secretaria
 All.PL look-for secretary
 'Everybody is secretary-hunting' (incorporated nominal)

And the same indeed applies to the pronominal version of these sentences, which we show through Clitic Left-Dislocation paraphrases where a-marking (and hence more grammatical structure) correlates with stronger referentiality:

- (33) a. *(A) una secretaria_i todos la_i buscan SP
 to a secretary all.PL ACC.3SF look-for
 'There's a secretary everybody is looking for'
 b. (*A) una secretaria_i todos la_i buscan
 to a secretary all.PL ACC.3SF look-for
 'Everybody is looking for a (probably different) secretary'
 c. (*A) secretaria_i todos (*la_i) buscan
 to secretary all.PL ACC.3SF look-for
 'They all are secretary-hunting'

This is clearer in languages with richer clitic paradigms, where accusative clitics get the referential cliticization, and partitives get the predicative one (with quantificational cases in between):

- (34) a. De dones en veiem (tres) cada dia CAT
 of women PART see.1P three each day
 'We see (three) women every day' (non-referential reading)
 b. Tres dones *en / les veiem cada dia
 Three women PART ACC.3PF see.1P each day
 'We see three women every day' (quantificational reading)
 c. *(A) tres dones *en / les veiem cada dia
 to three women PART ACC.3PF see.1P each day
 'We see three (specific) women every day' (referential reading ONLY)

Something similar occurs in Dutch, where different types of objects occupy different positions, and their referential import changes alongside (de Hoop, 1996): nonspecific objects occur in base position, while scrambling objects, which are higher in the structure, get specific interpretations. This is shown by the different linear position of these objects with respects to adverbial elements:

- (35) a. dat de politie gisteren (de) taalkundigen opgepakt heeft
 that the police yesterday (the) linguists arrested has
 '... that the police arrested linguists / the linguists yesterday'
 b. dat de politie *(de) taalkundigen gisteren opgepakt heeft
 that the police (the) linguists yesterday arrested has
 '... that the police arrested *linguists / the linguists yesterday'

Some additional proof of the different referential import of the different interpretations of the accusative clitics is their different relationship to backward anaphora: Neither quantificational (36b), nor predicative interpretations (36c) of the accusative clitic support the latter, which is what we expect if they have different configurations ((36c) from Picallo, 2007:55):

- (36) a. La_i vi ayer, a $María_i$ SP
 ACC.3FS saw.1s yesterday to Mary
 ‘I saw Mary yesterday’
- b. * La_i he conocido (a) [la madre de cada estudiante]_i
 ACC.3FS have.1s met to the mother of each Student
 INTENDED: ‘I’ve met the mother of every student’
- c. *Como la_i he arreglado, podemos conservar
 as ACC.3FS have.1SG fixed can.1PL to-preserve
 el whisky en barrica_i
 the whisky in cask
 INTENDED: ‘As I’ve already fixed it_i, we can keep the wine in cask_i’

In sum, it is clear that a superficially identical element, the accusative clitic, like its correlate, the definite determiner, can receive different referential interpretations, one stronger than the other, in a way that co-varies with the demands it makes on grammar. While unfortunately the extra grammatical marking on the clitics functioning in a more strongly referential way is not visible in Spanish or Catalan pronominals, it is overt in a subset of the nominals (the case of Differential Object Marking we briefly examine below). Also, we expect some languages where accusative case will be linked to different interpretations. This has been argued to be the case in a number of languages, including Turkish (Enç, 1991), Kannada (Lidz, 2006), or Hebrew (Danon, 2006), among others.

3.3. Dative clitics

We now turn to evidence that dative clitics are next in the hierarchy, structuralized higher than both predicative and accusative clitics, which they contain as proper parts of their structure. Like strong accusative clitics, they include a deictic layer. In line with Martín (2012), we suggest they are *composite*, built out of the accusative clitic plus a locative (deictic) element. Dative clitics share this layer with the personal pronouns, with which they are known to pattern in a number of respects.¹⁰ Ever since Kayne’s (1975) seminal work, it had been uncritically assumed that clitics form a unified class morphologically, syntactically, and semantically. This led to debates on for example the generation site of those elements. According to the *Movement Hypothesis*, clitics are generated in argument positions within VP and subsequently move up toward the inflectional layer of the sentence (cf. Kayne, 1975, 1989, 1991, 1994). In contrast, the *Base-generation Hypothesis* argues that clitics are externally merged in inflectional positions (Borer, 1984; Suñer, 1988; Fernández-Soriano, 1989, among others), which directly speaks to our extended topological mapping hypothesis. In recent years, an intermediate hypothesis has gained some prominence (Roca, 1992, 1996; or Sportiche, 1996 among others). On this view, accusative clitics are base-generated within VP and move subsequently to inflectional positions, with consequences for both their interpretation and their morphosyntax, different to the rest of the paradigm (gender features, regular number; see Martín, 2012 for review). Datives and personal clitics, by contrast, are base-generated in inflectional positions, and hence in an edge position. This hypothesis immediately explains why clitic doubling is a phenomenon mostly related to the personal and dative clitics.¹¹ It also explains the morphological, syntactic, and semantic properties of the two kinds of clitic. It also suggests a natural topological explanation for the semantic fact that dative phrases cannot host bare nominals, similar to subject positions:

- (37) a. * Le_i di un libro a niño_i SP
 DAT.3S gave.1s a book to Child
 INTENDED: ‘I gave a book to a child’
- b. * Les_i di un libro a niños_i
 DAT.3P gave.1s a book to Children
 INTENDED: ‘I gave a book to children’
- c. *Amigo de María telefoneó
 friend of Mary telephoned.3s
 INTENDED: ‘A friend of Mary telephoned’

¹⁰ In fact, Martín (2012) suggests that the personal clitics (1st and 2nd Person) are in fact all dative, regardless of their apparent syntactic function.

¹¹ Accusative doubling is rare in Romance in general and Spanish in particular, while dative (or personal) doubling is present in most of Romance, including *all* the Spanish dialects.

If the dative clitic (present because of dative doubling) is dropped, the sentence's grammaticality improves, at least in the case of the bare plural:

- (38) a. *Di libros a niño SP
 gave.1s books to child
 INTENDED: 'I gave books to a child'
 b. ?Di libros a niños
 gave.1s books to children
 INTENDED: 'I gave books to children'

It seems, therefore, that the presence of the dative clitic, which is the only obligatory element in the dative doubling construction, imposes demands on the referential interpretation of the dative phrase. To explain that, and following Strozer (1976), Masullo (1992), Demonte (1995), or Cuervo (2003), we suggest that the presence or absence of the clitic in fact corresponds to two different constructions, with only the real dative requiring clitic doubling. Without the clitic, we get prepositional phrases that are different to dative ones in that for example co-reference with the nominal complement of the preposition becomes impossible¹²:

- (39) a. Pablo *(le)_i puso azúcar a el café_i SP
 Paul DAT.3s put.3s sugar to the coffee
 b. Pablo (le)_i puso azúcar en el café_i
 Paul DAT.3s put.3s sugar to the coffee
 BOTH: 'Pablo put sugar in the coffee'
 (40) a. Pablo *(le)_i cocinó una tarta a Andrea_i
 Paul DAT.3s baked.3s a cake to Andrea
 b. Pablo (le)_i cocinó una tarta para Andrea_i
 Pabu DAT.3s baked.3s a cake for Andrea
 BOTH: 'Pablo baked a cake for Andrea'

So the dative clitic imposes requirements on the referential interpretation of the dative phrase it co-refers with, which cannot be predicative. According to Roca (1996), there is a difference in the kind of phrases that can be doubled by accusative and dative clitics, with accusative, but not dative, being restricted by specificity consideration (see section 3.2, where this claim was seen to only be partially true for the accusative clitics). Dative, but not accusative, clitics, can be doubled by negative phrases (41a), nonspecific indefinites (41b), or interrogative elements (41c):

- (41) a. No (le)_i doy nada a nadie_i SP
 NEG DAT.3s give.1s nothing to nobody
 'I give nothing to nobody'
 b. A un escritor_i nunca le_i doy nada
 to a writer never DAT.3s give.1s nothing
 'I never give anything to writers'
 c. ¿A quién_i le_i das dinero?
 to who DAT.3s give.2s money
 'To whom do you give money?'

In (41a), where the meaning of the sentence is not predicative but quantificational, the dative clitic is fully optional: '*No (le) doy nada a nadie*', or '*(Le) doy un libro a tres personas*' (I give the book to three people). When the phrase is maximally referential, as in rigid reference, the clitic becomes obligatory: '*No *(le) debo nada a ella / a María*' (I owe nothing to her/ Mary). Most interestingly, in predicative interpretations the clitic is completely out, as we saw above: '**(Les) doy libros a niños*' (I give books to children). With respect to (41b), this sentence does not have a non-specific (cardinal) reading, that is to say, it never has the reading (or it is rather marginal) where I never give assignments to just one writer (I only give assignments to sets of more than one writer). That reading is not available for this sentence. This sentence just has strong readings, either specific (there's a particular writer I never give any assignment to, because he's always late in

¹² This indeed entails that the particle 'a' that appears in the dative construction is not a *real* preposition, but rather a case marker, as argued by Masullo (1992) (cf. section 3.4).

turning them in), or generic (I never give anything to anybody belonging in the class of writers).¹³ This is what we expect if the presence of the dative clitic correlates with strong readings.

Finally, with respect to (41c), the same quantificational considerations we raised with respect to (41a) apply, and the clitic is again optional, although maybe not as optional as in the (41a) quantificational reading. We do not have at this point a full account for the apparently bigger optionality in these weak quantificational contexts.

In the dative case, in quantificational interpretations (bound variable), the dative pronoun is at least not as obligatory as in the referential cases. *Prima facie*, these data are consistent with the claim that dative clitic doubling or standing-in for noun phrases are a window into (or express) a purely grammatical property of them, irrespective of the lexical content of the noun phrases concerned: their referentiality, which we saw is not yet stably found at the level of the accusative. As the dative structurally contains the accusative (cf. Martín, 2012), what we see is a progression toward referentiality starting from a lexical core and ending with a clitic whose content is now essentially exhausted by the referentiality of the phrase it doubles and without which it can now appear.

3.4. Additional a-marking in strong accusative and dative nominals

Above we associated extra a-marking to strong accusative and dative phrases. That extra 'a' is usually either a (locative or directional) preposition, or an (strong accusative or dative) case marker. We do not go into the details of this here, as it would take us too far afield. Let us just say that the presence of that element clearly involves more grammatical structure and that correlates with more extensional reference (as it is also argued by Cardinaletti and Starke, 1999). In line with our general approach, the presence of 'a' is not directly linked to a specific case, as we have noted: All dative 3rd Person phrases, as well as a specific subset of 3rd Person accusative phrases, get a-marking. Notice, however, that all the *personal* clitics, with no exception, also get the 'a' in case of doubling:

- (42) a. Me vieron *(a) mi SP
 CL.1S see.3P To me
 'They saw me'
- b. Me dijeron eso *(a) mi
 CL.1S said.3P that to me
 'They said that to me'
- c. Te vieron *(a) ti
 CL.2S see.3P To you
 'They saw you'
- d. Te dijeron eso *(a) ti
 CL.2S said.3P that to you
 'They said that to you'

Personal pronouns thus behave like the 3rd Person dative clitics, and unlike the accusative clitics, in requiring the presence of a-marking. This fits well with the (pro)nominals we are calling referential, and we are linking to extra grammatical structure.¹⁴ Interestingly, a-marking with 3rd Person pronouns is also obligatory, but in that case the 3rd Person pronoun can only be referential:

- (43) a. Le vieron *(a) él SP
 CL.3S see.3P To He
 'They saw him'
- b. *[A cada hombre]_i le_i dijeron eso *(a) él_i
 to each man CL.3S said.3P that to he
 INTENDED: 'They told that to each man'

To make sense of additional a-marking, we follow the arguments in Jayaseelan and Hariprasad (2001) (J&H), according to which it holds universally that referring nominal expressions, as opposed to non-referring ones, contain place deixis. As

¹³ Generic or kind reference patterns with strong readings, according to Longobardi (1994, 2005).

¹⁴ Notice that in the full phrase with a-marking ('a mi', 'a ti'), the 1st and 2nd pronouns change form with respect to their clitic form ('me' and 'te'). That extra 'i' might be related to the presence of the deictic feature we are about to posit for personal and dative clitics. We leave the investigation of this topic for future work.

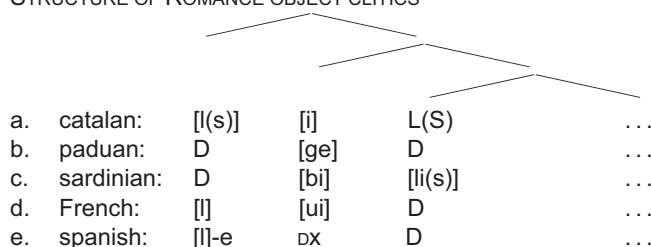
a consequence, J&H postulate a DeixP in the extended nominal expression whose presence is crucial in the semantics of reference, because it provides a deictic index to the nominal that allows a referential interpretation, as either a strong accusative (*ACC), or a personal clitic including 3rd Person dative clitics).^{15,16} This ‘a’ element has clitic counterparts in Romance languages like Catalan ‘hi’, French ‘y’, Italian ‘ci’, Paduan ‘ghe’, etc. Although this element has usually been considered a locative clitic, this is a simplification, as argued in [Kayne \(2008\)](#), as it is used in non-locative contexts. This suggests that locative uses are but particular cases of a more general meaning, which we consider deictic in the sense of [Kayne \(2008\)](#), and which are in complementary distribution, as shown in (44):

- (44) Jean pense à Marie → Jean (*a) y pense
 John thinks to Mary John to_{CL} thinks
 ‘John thinks of Mary / John thinks of her’

FR

This complementary distribution suggests that the two elements are contextual allomorphs of the same underlying element. In [Martin \(2012\)](#), it is suggested that both elements are the realization of J&H’s ‘DeixP’, an element which makes those elements be closer to essential indexicals, rather than to merely referential 3rd Person nominals, including proper names. That deictic element is part of the structure of datives and strong accusatives, as depicted in the tree in (45), under which we see examples of dative clitics in some Romance languages (capital letters indicate silent or moved elements):

(45) STRUCTURE OF ROMANCE OBJECT CLITICS



This tree depicts four hierarchically ordered layers. Following a suggestion of [Kayne \(2008\)](#) and [Caha \(2009\)](#), [Martín \(2012\)](#) argues that grammatically complex clitics contain as subparts grammatically simpler ones, and shows this for dative clitics, which amount to the structure [D + DEIX]. This layered hierarchy is mirrored in the morphological structure and syntactic behavior of clitics, and it entails the four interpretive classes we have distinguished in (pro-)nominals as an interpretative consequence. Thus, as noted, partitive clitics are entirely devoid of extended structure. They are pro-forms for empty noun phrases, and can only be interpreted predicatively, as they occupy the core of the nominal phase. Climbing up the phase, we find weak accusative clitics next. These clitics project a D layer that endows them with gender and number features, corresponding to the ‘lower’ region of D viewed as a ‘field’ of functional projections, with Person in the highest position. Such features allow weak referentiality properties (cardinal interpretations), like for example getting narrow scope or bound readings. Then, when J&H’s deictic layer is merged, the interpretation of the clitic becomes stronger, while at the same time retaining its gender features. D stays in place, and this allows gender features, but at the same time, D is bound by the deictic head, which imposes a referential (3rd Person) reading. The difference between the two kinds of accusative clitics is, as we said, only visible in Romance in the class of nominals that get Differential Object Marking ([Martín, 2009](#), and references therein) but it is very prominent in languages like Kannada ([Lidz, 2006](#)) or Hebrew ([Danon, 2006](#)).

Finally, dative clitics enter the realm of personal clitics, as they are dependent for interpretation on the system of participants in the discourse. Because of that, they add an additional D layer on top of the deictic head. That head, which is overtly visible in Catalan (45a) or Sardinian (45c), gives them their deictic interpretation, which is exactly the same that we see in personal clitics (see next section). Because the dative can be lexicalized by any part of the complex dative phrase, the others remaining silent, it is quite expected that the dative can have the overt form of an accusative (standard Catalan 3rd Person plural dative: *els*), the form of a locative (Paduan *ghe*), the form of a locative plus an accusative (Sardinian [bi + lis]), or the form of a dative plus a locative (Colloquial Catalan [els + hi]). Again, that extra D layer –an extension of the phase edge, in our terms– provides these clitics with a number of morphological and syntactic properties: (i) Dative clitics

¹⁵ The distinction between strong and weak accusative is inspired in the proposals in [Enç \(1991\)](#), [Torrego \(1998\)](#), [Danon \(2006\)](#), or [Lidz \(2006\)](#), according to which accusative case morphology is optional in many languages with inanimate objects, and when it is present it indicates a specific (i.e. referential) reading.

¹⁶ See [den Dikken \(2010\)](#) for independent arguments in favor of the incorporation of a DeixP in the extended projection of nominals.

do not get gender features (in virtually all of Romance), as they are blocked by the person features, exactly as what happens with the personal clitics, which also lack gender. In the next subsection, we argue that gender and person features are in complementary distribution. (ii) The [D + DEIX] configuration accounts for the intriguing morphological form of dative clitics in some Romance languages, like for instance the Catalan 3rd Person dative clitic ‘els hi’, with ‘hi’ a locative/deictic clitic. It also accounts for the formal syncretism of dative and locative clitics in Northern Italian languages such as Paduan (45b). (iii) The fact that dative clitics include accusatives also gives a principled explanation to many syntactic puzzles of these clitics, including opacity in clitic clusters, or the famous Person Case Constraint (PCC) (more on this below). The crucial point for our purposes here, given our account of the topology of reference in section 2, is that the structure in (45) suggests the availability of D-to-D movement, where the I-head merged in the lower D crosses over the deictic layer to reach into the higher regions of D.

We find further evidence in favor of this double D structure of nominals in languages like Greek, Swiss German or Norwegian (Leu, 2008). In Norwegian, the definite article appears as a suffix ‘-et’ attached to the noun in simple definite descriptions (46a), whose interpretation *must* be definite, not demonstrative. If the definite description includes an adjective, then apart from the suffix ‘-et’, the noun phrase must include an initial determiner ‘det’, and then the interpretation of the nominal can be definite or demonstrative (46b), getting stronger in our terms. However, when both the initial ‘det’ and the suffix ‘-et’ are present in an unmodified definite description, interpretation must be demonstrative (46c):

- (46) a. (*det) hus-et
that/the house-DEF
The house / *This house
- b. *(det) svarte hus-et
that/the black house-DEF
The black house / This black house
- c. det hus-et
that house-DEF
*The house / ^{OK} This house

According to Leu (2008), this difference arises in the presence of an Adjective Phrase in the left-periphery of the nominal, which allows for two occurrences of D, one higher, one lower. If only lower D is interpreted, the noun phrase can only be interpreted as definite. If both Ds are interpreted, demonstrative and definite interpretations are available. Finally, if only higher D is interpreted, the demonstrative interpretation is the only one available.

Insight into the Person Case Constraint is a particular benefit of the above analysis (for more details see Martín, 2012, and Boeckx and Martín, 2013). As we see in the diagram in (45) above, we hypothesize that dative clitics are built out of a lower D head embedded under a deixis head (D_x, as in Jayaseelan and Hariprasad, 2001), in turn embedded under a higher D head. As a result, dative clitics contain two D-occurrences, a high one, and a low one, with the low one corresponding to accusatives including Gender but no Person features, and the high one specialized for Person expressions lacking Gender. We have seen throughout the paper how different grammatical structures correlate with different interpretation. Therefore, since the two D occurrences occupy different structural positions, it is coherent to assign them distinct, non-overlapping interpretations: Person for the higher, gender/class for the lower, assuming further that Person and Gender are in complementary distribution, a thesis not without proponents in the literature (relevant examples for our discussion here are Harley and Ritter, 2002; Picallo, 2007; or Martín, 2012, among others).¹⁷

¹⁷ A reviewer considers that even though the complementary distribution of Person and Gender holds true on the morphological level, this characterization raises a problem with respect to examples like

(i) Io sono italiana.
‘I am Italian.FEM.SG’

Here the [feminine] feature on the predicative adjective, s/he says, cannot come from valuation of an unvalued gender feature, since by hypothesis, the subject ‘I’ lacks a valued gender feature. The solution, we speculate, might come from a silent NP (e.g. ‘una donna’) adjacent to the adjective in the line of Kayne (2005), from which ‘italiana’ might take its gender, leaving the personal pronoun genderless, as suggested by the fact that (ii) and (iii) are also possible, the latter involving a proper name valid for both males and females:

(ii) (Io) sono italiano
‘I am Italian.MASC.SG’

(iii) Io sono Alex
‘I am Alex’

We can then conclude that PCC effects emerge because only the higher dative element gets Person features (1st/2nd), leaving the low, [-Person] occurrence for the accusative, which can only be 3rd Person (as only 3rd Person gets Gender features). That is to say, the reason the PCC exists is that the dative clitic contains the accusative and not the other way around, as proven by the fact that PCC effects only arise if the dative is 3rd Person and the accusative is 1st or 2nd Person (47). If the accusative is 3rd Person, and the dative 1st or 2nd, (48), PCC effects do not arise:

- (47) *Al director me li ha recomanat la Maria CAT
 to-the director ACC.1S DAT.3S AUX recommended the Mary
 INTENDED: 'As for the director, Mary has recommended me to him'
- (48) El director me 'l recomana la Maria
 the director DAT.1S ACC.3SM recommend the Mary
 'As for the director, Mary recommended him to me'

This proposal maintains the idea found in many analyses of the PCC that link it to competition of features, but it is not a movement competition. From this perspective, PCC reflects a maximal amount of realizable features distributed over several occurrences, if a dative is present (cf. Boeckx and Martin, 2013 for details on this).

The additional structure proposed here is responsible for the extension of the referential hierarchy proposed in Longobardi (2005), and Sheehan and Hinzen (2011) to deictic and ultimately personal interpretations. The personal pronouns, to which we turn in the next section, conform to a structure of an *extended left edge*.

3.5. Personal pronouns

The above proposal entails that 1st and 2nd Person clitics should always come with a deictic layer, and include a higher D-head containing the deictic layer, thereby going beyond the N-to-D movement that we have found in the domain of proper names. Evidence for this proposal is the fact that personal clitics do have more structure than any other referential (pro-)nominals, and may be directly merged in the higher D-layer, unlike the head of Dative clitics, which may only move there from the lower D-head. Thus, for example, as we claimed in the previous section, the 3rd Person dative pronouns include a deictic layer, which is visible in languages like Catalan or Sardinian, and that layer is also visible in the Latin personal pronouns, as we show next.

Interesting in itself is the fact that Latin does not have 3rd Person pronouns, for which demonstratives were used instead (we illustrate in (49) through weak or anaphoric demonstratives, illustrating again the split between merely object-referential (3rd or no person) expressions and those carrying person-reference in discourse:

(49) LATIN PERSONAL PRONOUNS AND DEMONSTRATIVES.

	1st	2nd	DEMONSTRATIVES (SG only)		
NOMINATIVE	<i>ego</i>	<i>tu</i>	<i>is</i>	<i>ea</i>	<i>id</i>
ACCUSATIVE	<i>mē</i>	<i>tē</i>	<i>eum</i>	<i>eam</i>	<i>id</i>
GENITIVE	<i>meī</i>	<i>tuī</i>	<i>eius</i>		
DATIVE	<i>mihi</i>	<i>tibi</i>	<i>eī</i>		
ABLATIVE	<i>mē</i>	<i>tē</i>	<i>eō</i>	<i>eā</i>	<i>eō</i>

Of particular relevance for our case in point here are the dative pronouns 'mihi' and 'tibi'. It is clear, given the other pronouns in the paradigm, that [m] and [t] are 1st and 2nd Person morphemes, respectively (Kayne, 2000). As a result, the dative pronouns seem to be composed of those person features plus something else, i.e. [m + ihi] and [t + ibi] respectively. The question is then: What is the semantic import of [ihi] and [ibi]?

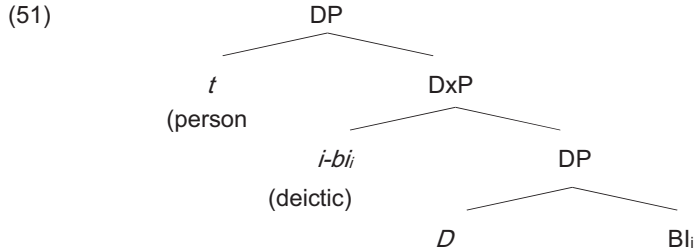
Let us start with the latter. Latin 'ibi' is a distal locative adverb equivalent to English 'there'. The proximal equivalent of 'ibi' is 'hic', often translated to English as 'here' (Panhuis, 2006). So the 2nd Person pronoun 'tibi' seems to have the structure [t + ibi], i.e. [2nd Person + locative]. We would expect then that the 1st Person pronoun had the same structure, i.e. person feature [m] + locative [ihi]. Now, in itself [ihi] does not correspond to any locative element in Latin. The closest element we can find is the above-mentioned 1st Person demonstrative or adverb 'hic'. So let us assume that [ihi] contains

a reduced version of that proximal element. It would make sense if the 1st Person pronoun contains a proximal deictic like 'hic', just like the 2nd Person contains the distal deictic 'ibi'. This is close, but we still have the problem of the initial 'i' in 'ihi'. To examine it, let us go back to the 2nd Person dative 'tibi'.

We just saw that 'tibi' has the structure [t + ibi], that is to say [2nd Person + locative], and that 'ibi' is a distal locative element. Now, 'ibi' has an interrogative counterpart 'ubi', with which it has a relationship similar to that of English *there* with *where* (where 'th-' is a referential element, and 'wh-' is an interrogative element, something also visible in 'that' and 'what', or 'then' and 'when', with 'that', 'then', and 'there' all being deictic). Bearing 'ibi-ubi' in mind, one could easily consider 'ibi' bimorphemic, forming a minimal pair with the interrogative and relative pronoun 'ubi'. The latter, in turn, should be bimorphemic too, decomposing into [u + bi], i.e. [interrogative + place] with the meaning 'what place', or 'where. Analogously, 'ibi' should also be decomposable and have the structure [i + bi], with [-bi] likely meaning 'place', something confirmed by two facts: (i) Firstly, by the fact that there are other members of the 'i-u' paradigm like 'utrō' means 'which way?' in Latin, but 'utrōbī' means 'in which place?'. So 'utrōbī' can clearly be analyzed as [utrō + bī], where 'bī' means 'place'. (ii) Secondly, by the fact that 'bi' does mean 'place' in Sardinian, a Latin descendant:

- (50) Bi nke nd' at issitu tres SARDINIAN
 PLACE LOC PART AT exited.3P Three
 'There came three of them out of there' [from Jones, 1993]

The question that remains, then, is that initial 'i' of 'ibi' (and '-ihi'). Interestingly, 'i' is (at least part of) the locative pronouns of some Romance languages (French *y*, Catalan *hi*, Italian *ci*). However, since, as we have just seen, these elements are deictic in a more general sense rather than merely locative, let us assume that 'i' is really that, a deictic.¹⁸ So [i + bi] would have the structure [deictic + place]. As a result of all this, the structure of 'tibi' is [t + i + bi], that is to say [2nd Person + deictic + place]. Analogously, the structure of *mihi* should be [m + i + hi], i.e. [1st Person + deictic + (proximal) place]. Both of them have the structure in (51), which as the reader will note is essentially the same as (45) above (again, capital letters mean silent or moved elements):^{19,20}



Notice that if this is on the right track, it is very close to the structure we have proposed for Dative clitics in the Romance descendants of Latin we have exemplified in (45) above, namely [ACC + DX]. Consider now parallels between Dative clitics and Catalan 3rd Person strong pronouns:

¹⁸ Additional evidence in support of 'i' as a deictic element, is provided by Leu (2008), for whom a demonstrative like 'this' has the underlying structure [the + here], with 'here' a deictic. Likewise, the Latin distal demonstrative 'ille' ('that') could be decomposed as [i + lle], with 'i' a deictic, and 'le' the element that later became the definite article (which Latin lacked) in most of Romance languages.

¹⁹ We stress that the decomposition of Latin pronouns in this section is offered as a synchronic reinterpretation hypotheses rather than a detailed etymological analysis of Latin forms, which is beyond the scope of this paper. For the latter, we refer the interested reader to etymological dictionaries such as Ernout and Meillet (1932). Our hypothesis regarding the relatedness of the dative personal pronouns 'mihi' and 'tibi' with the proximal and distal demonstrative pronouns ('hic' and 'ibi', respectively) is based on comparative analysis in the sense of e.g., Kayne (2000). In that sense, we argue that the minimal pairs 'ibi-ubi' or 'inde-unde' suggest that 'u' is an interrogative particle, and 'i' its correspondent enunciative particle, and subsequently that the decomposition of 'ibi' into 'i + bi' is a plausible hypothesis, for which falsification criteria are clear.

²⁰ As suggested by a referee, when analyzing the possibility of the 'hi' in 'mihi' coming from 'hic', it should be noticed that the '-c' in the latter is a reinforcer extraneous to the root, missing in the a substantial part of the paradigm (genitive singular, and most of the plural). Interestingly enough, this element is present in many distal demonstrative forms across Romance, such as Catalan 'aquest', Italian 'questo', or Spanish 'aque!l'.

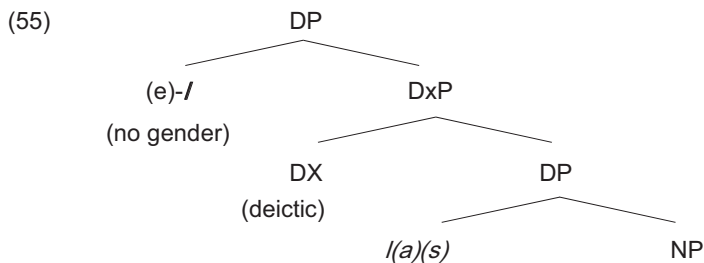
(52)

NUMBER	GENDER	STRONG	ACC
SINGULAR	MASC	<i>ell</i>	<i>el</i>
	FEM	<i>ella</i>	<i>la</i>
PLURAL	MASC	<i>ells</i>	<i>els</i>
	FEM	<i>elles</i>	<i>les</i>

These pronouns are interesting because they have *more* grammatical structure than their accusative clitic counterparts. This yields differences both morpho-syntactically and semantically, exactly along the lines we are suggesting in this paper. Thus the fact that they have more structure explains why these pronouns do not undergo processes of phonological reduction and are stressed, unlike their clitic counterparts. For example, compare the accusative clitics (or definite determiners) in (53a) and (54a), with their strong pronoun counterparts in (53b) and (54b). In line with our account, the dative clitic in (53c) patterns with the strong pronouns:

- (53) a. L' / *El ha corregut CAT
 ACC.3SM ACC.3SM have.3s run.PSTP
 'He has run it' (e.g. the marathon)
- b. Ell ha corregut
 He have.3s run. PSTP
 'He has run'
- c. Li / *L' ha dit la veritat
 DAT.3S DAT.3S have.3s told the truth
 'He has told him the truth'
- (54) a. Per + el (cotxe) = Pel (cotxe)
 For + the (car) = For-the (car)
- b. Per + ell = Per ell (but not *pell)
 For + he = For him

This follows if strong pronouns conform to the structure we have suggested for dative clitics:



This extra structure provides strong pronouns with their special kind of grammatical semantics. For instance, we know that strong and personal pronouns cannot be bound in sentences like these:

- (56) a. *Un / el parisenc_i compra plaça de parking CAT
 a the parisian buy.3s spot of parking
 si ell_{#i / j} pro_{i / j} té cotxe
 if he pro have.3s car
 INTENDED: 'A Parisian buys a parking spot if he has a car'
- b. *[Cada uno de nosotros]_i dijo que me_i gusta SP
 each one of we said.3s that CL.1s like.1s
 INTENDED: 'Each of us said: 'I like it''
- c. [Cada uno de nosotros]_i dijo que le_i gusta SP
 each one of we said.3s that CL.3s like.1s
 'Each of us said he like it'

- d. *?²[Cada uno de nosotros]_i dijimos que nos_i gusta
 each one of we said.3s that CL.1P like.1s
 INTENDED: 'Each of us said he like it' (≠ 'Each of us said WE like it')
- e. Nosotros_i dijimos que nos_i gusta
 We said.3s that CL.1P like.1s
 INTENDED: 'We said we like it'

In (56a), from Picallo (2007), the bound reading can only be provided by the null, but not the strong pronoun. (56b) shows that the 1st Person pronoun resists binding, while in (56c), the person features of the pronoun in the antecedent are interpreted there, and the bound pronoun is a 3rd Person pronoun. In (56d), the 1st Person features of the plural clitic resist binding as well: it does not assign a different interpretation to each assignment of a value of the higher quantifier. Although we have a real quantifier in subject position and might expect a quantificational reading, we do not get one: the sentence is ungrammatical, or at least marked. (56e), in turn, *is* grammatical, but the 1st Person plural clitic is not bound, because it refers collectively to the whole plurality 'nosotros' ('we'). This accords with our earlier observation that there is something intrinsic to person features that make them resist binding because of an inherent tendency toward strong and deictic readings.

Evidence in this section thus illustrates strikingly that the grammar of the Romance clitic system is systematically sensitive to differences in referentiality, and sensitive in particular to the difference between 3rd Person object reference and personal reference, while remaining consistent with the broad topological mapping principle developed in section 2. This evidence argues against a semantic explanation of essential indexicality, and it re-locates the source of the phenomenon in how grammar configures modes of reference that critically depend on particular layers of grammatical complexity in the left edge of the phase.

4. Conclusions

The above allows us to conclude that as much as there is a grammar of 3rd (or non-) Person reference, there is a grammar of deictic and personal reference. It transpires against the background of a general 'topological' mapping from the phasal dynamics of grammar to the forms of reference that there is, in fact, a hierarchy of referentiality. The hierarchy in question ranges from purely predicative to quantificational forms of reference involving scope, to rigid forms of 3rd Person object-reference, and from there to deictic and personal forms of reference that, at the end of the scale, we only find in the domain of the personal (subject) pronouns and the object clitics that pattern with them (datives). This progression from 3rd to personal deictic forms of reference is mirrored by an increase in referential strength as *well as*, coordinated with that, an increase in grammatical complexity: the progression in referential strength clearly correlates descriptively with filling, and then expanding, the edge of the nominal phase, in line with work on the grammar of reference to date. At any stage of the hierarchy, what is decisive is not the lexical content of the items concerned, but the grammar of their occurrence. The so-called 'indexicals' do not form a uniform (lexical) class.

This account rationalizes the existence of essential indexicality in all human languages: far from being a merely pragmatic phenomenon, pronouns in the relevant uses, we can now conclude, express forms of inherently *grammatical reference* that no other nominal can emulate and that is maximally unmediated by lexical content. There is no evidence that it does or could exist, absent the forms of linguistic and specifically grammatical organization in question. It is natural to conclude that indexicality is essential *because* it is grammatical, and because its grammar is such that other forms of reference, as found in proper names, definite descriptions, or 3rd Person accusative pronouns, are strictly less complex than it. This deeper issue is the subject of a companion paper to the present one.

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